

REMARKS/ARGUMENTS

The claims 1-18. Claims 1 and 11 have been amended to better define the invention. Reconsideration is expressly requested.

In the January 12, 2010 Final Office Action, claims 1-18 were rejected under 35 U.S.C. 103(a) as being unpatentable over *Uemura U.S. Patent Application Publication No. 2001/0048460* in view of *Shirota et al. U.S. Patent No. 6,859,223*. The remaining claims 4-7 and 13-15 were rejected under 35 U.S.C. 103(a) as being unpatentable over *Uemura* in view of *Shirota et al.* and further in view of *Isono et al. U.S. Patent No. 6,249,306*.

In response, Applicants filed a Response After Final on May 5, 2010 presenting arguments distinguishing the prior art. In the May 28, 2010 Advisory Action, the Examiner indicated that such Response failed to place the application in condition for allowance, *inter alia*, because "Applicant only claims representing a two-dimensional part picture and not projecting a two-dimensional part picture."

Accordingly, Applicants have filed a Request for Continued Examination (RCE) and this Preliminary Amendment in RCE amending claims 1 and 11 to make clear that the imaging optics are for projection of the -- two-dimensional -- part picture onto the light-sensitive material and that a rapid intermediate memory for storing a strip-like region of the master image which the two-dimensional part picture represents is provided or used, from which the picture data for the -- two dimensional -- part picture to be exposed in each case is transmitted onto the light modulator synchronously with the movement of the exposure unit. The rejection is therefore respectfully traversed for the following reasons.

As set forth in claims 1 and 11 as amended, Applicants' invention provides a device for the digital exposure of light-sensitive materials and a method for the digital exposure of light-sensitive materials using same. The device includes, *inter alia*, an electronically activatable spatial light modulator for representing a two-dimensional part picture of a master image and imaging optics for projection of the two-dimensional part picture onto a light-sensitive material. The device also includes a drive device including motors and a motor control for the movement of an exposure unit parallel to the surface of the

light-sensitive material, with a scroll means for scrolling a picture strip of the master image through the light modulator. The device also includes a rapid intermediate memory for storing a strip-like region of the master image, from which the picture data for the two-dimensional part picture to be exposed in each case, may be transmitted onto the light modulator synchronously with the movement of the exposure unit.

In this way, Applicants' invention provides a device and method with which an exposure in a quick scrolling mode is possible. The intermediate memory, particularly with regard to hardware, is suitable for particularly quick access. It does not need to record the complete master image but only a strip-like region of the master image, from which in turn the picture data, which just at that moment is needed by the light modulator for the exposure, may be pulled up. Thereby, the intermediate memory is synchronized with the movement of the exposure unit via a suitable synchronization means which permits a rapid synchronous picture data transmission to the light modulator without a direct participation of the computer which may not ensure the accurate synchronization in real time.

The primary reference to *Uemura* discloses a laser device for recording a two-dimensional image on a photosensitive medium in which the image data is represented in a plurality of buffer memories LB1 through LBm for temporarily storing image data for respective main scanning lines which are supplied from the second image memories HM1 through HMm (see paragraph [0021]). Based on the image data supplied from the buffer memories LB1 through LBm, the drivers DR1 through DRm supply drive currents to the respective laser diodes LD of the light source units CH1 through CHm to record a desired image on the recording film F (see paragraph [0022]). Consequently, the image data is represented as line data and only the line data is shifted across the one-dimensional light source array by means of the line buffers LB1 through LBm.

The "imaging optics for projecting of the part picture" cited by the Examiner consists only of collimator lenses 20 for collimating the respective laser beams bl through bm and respective focusing lenses 22 for focusing the collimated laser beams bl through bm, respectively, onto the recording film F (see paragraph [0019]). Collimator lenses 20 and focusing lenses 22 can focus the laser beam only onto one pixel on the recording film F. The lenses 20 and 22 can expose only a single point

(pixel) and it is impossible to project a complete two-dimensional part picture onto the film. Consequently, the lenses 20 and 22 of *Uemura* cannot be regarded as "imaging optics for projection of the two-dimensional part picture onto the light-sensitive material" according to Applicants' amended claims 1 and 11. The Examiner's statement in the last paragraph of page 3 of the Final Office Action to that effect is specifically traversed.

Thus, in *Uemura*, the lenses 20 and 22 of each light source (LD) are each projecting only a single spot onto the film. Although this spot can be regarded as the picture of the respective light source (CH1...CHm), it represents only a single pixel of the two-dimensional picture to be created on the two-dimensional surface of the film. Such a two-dimensional image on the surface of the film F is created by *Uemura's* apparatus by moving the complete light source together with the lenses in Y-direction and by moving the film in X-direction. In this way, the two-dimensional image on the film is created pixel by pixel and one after the other pixel over a long time period. In contrast, Applicants' device and method as recited in amended claims 1 and 11 create thousands of pixels of a two-dimensional image at the same time.

It is also respectfully submitted that it is impossible for the device disclosed by *Uemura* to scroll a picture strip of the master image through the light modulator, contrary to the Examiner's position in the first paragraph of page 4 of the Final Office Action. A picture strip is a two-dimensional strip of the complete picture and, it is respectfully submitted, is not comparable with the line data processed by the *Uemura* device.

Moreover, the Examiner's statement in that same paragraph according to which the exposure unit of *Uemura* can be moved parallel to the surface of the light sensitive material is also specifically traversed. According to *Uemura*, the recording film F is mounted on a drum 14. The surface of the recording film F is consequently bent to form a part of a cylindrical surface. It is respectfully submitted that a movement of the exposure unit "parallel" to a surface as recited in Applicants' amended claims 1 and 11 makes sense only with a planar surface.

The defects and deficiencies of the primary reference to *Uemura* are nowhere remedied by the secondary reference to *Shirota et al.*, which discloses a recording apparatus with a DMD as spatial light modulator. In contrast to Applicants' device and method as recited in amended claims 1 and 11, *Shirota et al.*

fails to disclose or suggest a two-dimensional scrolling of picture strips of the master image through a light modulator. Accordingly, even if one were to combine *Shirota et al.* with *Uemura*, as suggested by the Examiner, one would still not achieve Applicants' device and method as recited in amended claims 1 and 11.

In addition, *Shirota et al.* fails to disclose or suggest a rapid intermediate memory for storing a strip-like region of the master image, from which the picture data for the two-dimensional part picture may be transmitted onto the lighted modulator synchronously with the movement of the exposure unit. Although the Examiner has taken the position that it would have been obvious to one skilled in the art at the time of the invention to combine *Uemura* in view of *Shirota et al.* because of the increased image quality the spatial light modulator would provide for the user, it is respectfully submitted that there is no teaching in either *Uemura* or *Shirota et al.* that a spatial light modulator would provide increased image quality. More important, the problem to which Applicants' device and method is directed of specifying an exposure device with which an exposure in the quick scrolling mode is made possible is nowhere disclosed or suggested by *Uemura* or *Shirota et al.*, whether considered individually or

in combination. Accordingly, one skilled in the art would have no reason to combine *Uemura* with *Shirota et al.* as suggested by the Examiner and even if such a combination were to be made, one would still not achieve Applicants' device and method as recited in claims 1 and 11.

The remaining reference to *Isono et al.*, cited against certain dependent claims, has been considered but is believed to be no more relevant. There is no disclosure or suggestion of a device or a method for the digital exposure of light-sensitive materials, including an electronically activatable spatial light modulator for representing a two-dimensional part picture of a master image, imaging optics for projection of the two-dimensional part picture onto a light-sensitive material, a drive device including motors and a motor control for the movement of an exposure unit parallel to the surface of the light-sensitive material, with a scroll means for scrolling a picture strip of the master image through the light modulator and with a control device for synchronizing the drive device with a scroll means, and a rapid intermediate memory for storing a strip-like region of the master image, from which the picture data for the two-dimensional part picture to be exposed in each case, may be

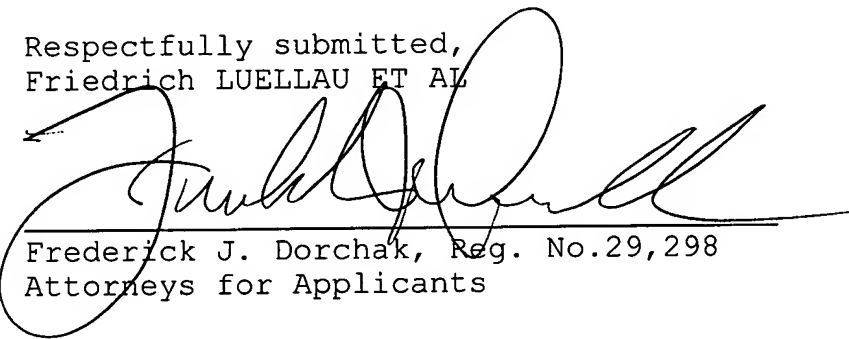
transmitted onto the light modulator synchronously with the movement of the exposure unit.

Accordingly, it is respectfully submitted that amended claims 1 and 11, together with claims 2-10 and 12-18 which depend directly or indirectly on claims 1 and 11, respectively, are patentable over the cited references.

In summary, claims 1 and 11 have been amended. In view of the foregoing, it is respectfully requested that the claims be allowed and that this application be passed to issue.

Respectfully submitted,
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EXPRESS MAIL NO. EM 372 666 278 US
Date of Deposit: June 11, 2010

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